Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Eye care: percentage of patients aged 18 years and older with a diagnosis of uncomplicated cataract who had cataract surgery and had any of a specified list of surgical procedures in the 30 days following cataract surgery which would indicate the occurrence of any of the following major complications: retained nuclear fragments, endophthalmitis, dislocated or wrong power IOL, retinal detachment, or wound dehiscence.

Source(s)

American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), American Academy of Ophthalmology. Eye care I and II performance measurement sets. Chicago (IL): American Medical Association (AMA); 2015 Aug. 55 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Outcome

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients aged 18 years and older with a diagnosis of uncomplicated cataract who had cataract surgery and had any of a specified list of surgical procedures in the 30 days following cataract surgery which would indicate the occurrence of any of the following major complications: retained nuclear fragments, endophthalmitis, dislocated or wrong power intraocular lens (IOL), retinal detachment, or wound dehiscence.

Rationale

Complications that may result in a permanent loss of vision following cataract surgery are uncommon. This short-term outcome of surgery indicator seeks to identify those complications from surgery that can

reasonably be attributed to the surgery and surgeon and which reflect situations which - if untreated - generally result in significant avoidable vision loss that would negatively impact patient functioning. Further, it seeks to reduce surgeon burden and enhance accuracy in reporting by focusing on those significant complications that can be assessed from administrative data alone and which can be captured by the care of another physician or the provision of additional, separately coded, postoperative services. Finally, it focuses on patient safety and monitoring for events that, while hopefully uncommon, can signify important issues in the care being provided. For example, the need to reposition or exchange an intraocular lens (IOL) reflects in part "wrong power" IOL placement, a major patient safety issue.

In order to achieve these ends, the indicator excludes patients with other known, pre-operative ocular conditions that could impact the likelihood of developing a complication. Based on the results of the Cataract Appropriateness Project at RAND, other published studies, and one analysis performed on a national Managed Care Organizations (MCO) data base, the exclusion codes would preserve over 2/3 of all cataract surgery cases for analysis. Thus, this provides a "clean" indicator that captures care for the large majority of patients undergoing cataract surgery.

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

This is an outcome measure. As such, there are no statements in the guideline specific to this measurement topic.

Evidence for Rationale

American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), American Academy of Ophthalmology. Eye care I and II performance measurement sets. Chicago (IL): American Medical Association (AMA); 2015 Aug. 55 p.

Primary Health Components

Cataract surgery; major complications; retained nuclear fragments, endophthalmitis, dislocated or wrong power intraocular lens [IOL], retinal detachment, wound dehiscence

Denominator Description

All patients aged 18 years and older who had cataract surgery and no significant ocular conditions impacting the surgical complication rate (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Patients who had one or more specified operative procedures for any of the following major complications within 30 days following cataract surgery: retained nuclear fragments, endophthalmitis, dislocated or wrong power intraocular lens (IOL), retinal detachment, or wound dehiscence

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed

journal

Additional Information Supporting Need for the Measure

Opportunity for Improvement

The advances in technology and surgical skills over the last 30 years have made cataract surgery much safer and more effective although complications that threaten vision do occur. For example, a study of more than 220,000 Medicare beneficiaries who underwent cataract surgery between 1994 and 2006 found that more than 1,000, or about 0.5%, of patients had at least one severe postoperative complication (American Academy of Ophthalmology [AAO], 2011).

In a review, Taban et al. (2005) found a postoperative rate of endophthalmitis of 0.128%.

Additionally, in a review of Medicare claims data between 1994 and 2006, Stein et al. (2011) reported a one-year postoperative rate of retinal detachment of 0.26%.

The occurrence of one of these events is associated with a significant potential for vision loss that is otherwise avoidable. With an annual volume of 2.8 million cataract surgeries in the U.S., a 2% rate would mean that over 36,000 surgeries are accompanied by these complications.

Evidence for Additional Information Supporting Need for the Measure

American Academy of Ophthalmology Cataract and Anterior Segment Panel. Cataract in the adult eye. San Francisco (CA): American Academy of Ophthalmology (AAO); 2011. 89 p. [855 references]

American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), American Academy of Ophthalmology. Eye care I and II performance measurement sets. Chicago (IL): American Medical Association (AMA); 2015 Aug. 55 p.

Stein JD, Grossman DS, Mundy KM, Sugar A, Sloan FA. Severe adverse events after cataract surgery among Medicare beneficiaries. Ophthalmology. 2011 Sep;118(9):1716-23. PubMed

Taban M, Behrens A, Newcomb RL, Nobe MY, Saedi G, Sweet PM, McDonnell PJ. Acute endophthalmitis following cataract surgery: a systematic review of the literature. Arch Ophthalmol. 2005 May;123(5):613-20. PubMed

Extent of Measure Testing

The American Medical Association (AMA)-convened Physician Consortium for Performance Improvement (PCPI) collaborated on several measure testing projects in 2012 and 2015 to ensure the Cataracts – Complications within 30 Days Following Cataracts Surgery measure and Cataracts – 20/40 or Better Visual Acuity within 90 Days Following Cataracts Surgery measures are reliable and evaluated for accuracy of the measure numerator, denominator and exception case identification. The testing projects were conducted utilizing electronic health record data and registry data. Parallel forms reliability and signal-to-noise reliability were tested. One site participated in the parallel forms testing of the measures. Site A was a physician-owned multi-location suburban practice in a large Midwestern city with four physicians. Signal-to-noise reliability was assessed using 2013 data acquired from the Centers for Medicare & Medicaid Services Physician Quality Reporting System Group Practice Reporting Option (GPRO) database. An analysis of the measure exclusions was conducted using 2013 Medicare 5% Beneficiary claims data.

Cataracts – Complications within 30 Days Following Cataracts Surgery

Reliability Testing Results

Parallel Forms Reliability Testing (Site A)

There were 149 observations from one site used for the denominator analysis. The kappa statistic value was found to be non-calculable resulting from the inability to divide by zero in the statistic formula when only one response was used.

Of the 149 observations that were initially selected, 149 observations met the criteria for inclusion in the numerator analysis. The kappa statistic value of 0.00 demonstrates poor agreement between the automated report and reviewer. However, upon further review of the testing results, it was determined that the low kappa score results from the limitation of the kappa statistic where while the agreement can be 90% or greater, if one classification category dominates, the kappa can be significantly reduced.

Reliability: N, % Agreement, Kappa (95% Confidence Interval)
Denominator: 149, 100.0%, Non-Calculable* (Non-Calculable, Non-Calculable)*
Numerator: 149, 99.3%, 0.00 (-0.02, 0.00)**

*Cannot calculate kappa statistics when only one response (Yes/Yes) was used, as this causes a divide-by-zero error in the statistic formula.

**This is an example of the limitation of the Kappa statistic. While the agreement can be 90% or greater, if one classification category dominates, the kappa can be significantly reduced.

Signal-to-Noise Reliability Testing

For this measure, the reliability at the minimum level of quality reporting events (10) was 0.87. The average number of quality reporting events for physicians included is 53.3. The reliability at the average number of quality reporting events was 0.97.

This measure has high reliability when evaluated at the minimum level of quality reporting events and high reliability at the average number of quality events.

Exclusions Analysis
Medicare 5% Beneficiary claims data sample, there were 46,715 unique individuals who had a cataract procedure in the first nine months of 2013 with a total of 70,773 procedures. Using the criteria for the measure, 36,988 (52.2%) procedures had a cataract measure exclusion associated with the procedure.

Evidence for Extent of Measure Testing

American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), American Academy of Ophthalmology. Eye care I and II performance measurement sets. Chicago (IL): American Medical Association (AMA); 2015 Aug. 55 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Ambulatory Procedure/Imaging Center

Hospital Outpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Individual Clinicians or Public Health Professionals

Statement of Acceptable Minimum Sample Size

Does not apply to this measure

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Making Care Safer
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Safety

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Patient/Individual (Consumer) Characteristic

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
All patients aged 18 years and older who had cataract surgery and no significant ocular conditions impacting the surgical complication rate

Note: Refer to the original measure documentation for administrative codes.

Exclusions
Patients with any one of a specified list of significant ocular conditions that impact the surgical complication rate

Exceptions
None

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Patients who had one or more specified operative procedures for any of the following major complications within 30 days following cataract surgery: retained nuclear fragments, endophthalmitis, dislocated or

wrong power intraocular lens (IOL), retinal detachment, or wound dehiscence

Note: Refer to the original measure documentation for administrative codes.

Exclusions
Unspecified

Numerator Search Strategy

Fixed time period or point in time

Data Source

Electronic health/medical record

Registry data

Type of Health State

Adverse Health State

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Measure #3 cataracts: complications within 30 days following cataract surgery requiring additional surgical procedures.

Measure Collection Name

AMA/PCPI Eye Care I and II Performance Measurement Set

Submitter

American Medical Association - Medical Specialty Society

Developer

American Academy of Ophthalmology - Medical Specialty Society

Physician Consortium for Performance ImprovementÂ® - Clinical Specialty Collaboration

Funding Source(s)

Unspecified

Composition of the Group that Developed the Measure

Eye Care II Measure Development Work Group*

Work Group Members

Paul P. Lee, MD, JD (*Co-chair*) (ophthalmologist)
Jinnet B. Fowles, PhD (*Co-chair*) (methodologist)

Non-surgical Management Subgroup

- Richard L. Abbott, MD (ophthalmologist)
- Lloyd P. Aiello, MD, PhD (ophthalmologist)
- Murray Fingeret, OD (optometrist)
- Andrea Gelzer, MD, MS, FACP (health plan)
- Mathew MacCumber, MD (ophthalmologist)
- Mildred M. G. Olivier, MD (ophthalmologist)
- Marcus G. Piccolo, OD (optometrist)
- Sam J. W. Romeo, MD, MBA (family practice)

Surgical Management Subgroup

- Priscilla P. Arnold, MD (ophthalmologist)
- Andrea Gelzer, MD, MS, FACP (health plan)
- Richard Hellman, MD, FACP, FACE (endocrinologist)
- Leon W. Herndon, MD (ophthalmologist)
- Jeffrey S. Karlik, MD (ophthalmologist)
- James L. Rosenzweig, MD, FACE (endocrinologist)
- John T. Thompson, MD (ophthalmologist)

Work Group Staff

Centers for Medicare & Medicaid Services: Susan Nedza, MD, MBA, FACEP; Sylvia Publ, MBA, RHIA

American Academy of Ophthalmology: Flora Lum, MD

Facilitators: Timothy F. Kresowik, MD; Rebecca A. Kresowik

National Committee for Quality Assurance: Donna Pillittere; Phil Renner, MBA

American Medical Association (AMA)-convened Physician Consortium for Performance Improvement®(PCPI®): Karen S. Kmetik, PhD; Heidi Bossley, MSN, MBA; Stephen Havas, MD, MPH, MS

*The composition and affiliations of the work group members are listed as originally convened in 2006 and are not up to date.

Financial Disclosures/Other Potential Conflicts of Interest

Conflicts, if any, are disclosed in accordance with the Physician Consortium for Performance Improvement® conflict of interest policy.

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2015 Nov 4

Measure Initiative(s)

Physician Quality Reporting System

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Aug

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

This measure updates a previous version: American Academy of Ophthalmology, Physician Consortium for Performance Improvement®, National Committee for Quality Assurance. Eye care physician performance measurement set. Chicago (IL): American Medical Association (AMA); 2010 Sep. 35 p.

Measure Availability

Source available from the American Medical Association (AMA)-convened Physician Consortium for Performance Improvement® Web site .

For more information, contact AMA at 330 N. Wabash Avenue Suite 39300, Chicago, Ill. 60611; Phone: 312-800-621-8335; Fax: 312-464-5706; E-mail: cqi@ama-assn.org.

NQMC Status

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Copyright Statement

Production

Source(s)

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